with respect to a projection field of said projection system at a velocity ratio corresponding to said magnification ratio during a scanning exposure;

(b) a finely movable stage, connected to said scanning system, which moves the mask relative to said scanning system;

(c) a detector which detects a positional deviation amount between the mask and the plate during the scanning exposure; and

(d) a control system, connected to said finely movable stage and said detector, which drives said finely movable stage based on said detected deviation amount during the scanning exposure.

36. (Twice amended) A scanning exposure method in which a pattern of a mask is transferred onto a sensitive plate through a projection system in a scanning manner, the method comprising:

(a) irradiating the mask with a radiation in order to project an image of said pattern of the mask onto the plate through said projection system;

(b) synchronously scanning each of the mask and the plate relative to said projection system by using a scanning mechanism for a scanning exposure wherein a scanning velocity of the mask is different from a scanning velocity of the plate;

(c) detecting a positional deviation amount between the mask and the plate at a term of the scanning exposure by using a first interferometer to measure positional information of the mask and a second interferometer to measure positional information of the plate; and

(d) correcting a position of the mask determined by said scanning mechanism for decreasing said detected deviation at the term of the scanning exposure.

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37. (Amended) A scanning exposure apparatus in which a first object is moved in a first direction and a second object is moved in a second direction for a scanning exposure, the apparatus comprising:

a projection system for the scanning exposure, which is disposed in an optical path of an exposure beam, the first object being provided on one side of the projection system and the second object being provided on the other side of the projection system;

a first driving system which moves the first object in the first direction, at least a part of the first driving system being on the one side of the projection system;

a second driving system which moves the first object in a plane substantially parallel to the surface of the first object while the first object is moved by the first driving system, at least a part of the second driving system being on the one side of the projection system; and

a third driving system which moves the second object in the second direction, at least a part of the third driving system being on the other side of the projection system.

39. (Amended) An apparatus according to claim 38, wherein said second driving system rotates said first object.

42. (Amended) An apparatus according to claim ~~41~~ 40, wherein said third driving system includes a linear motor.--

48. (Amended) An apparatus according to claim 37, further comprising:

a first movable member which is movable in the first direction; and

a second movable member which is movable relative to the first movable member and which supports the first object,

wherein the first object is moved in the first direction by moving the first movable member with the first driving system, and the first object is moved by moving the second movable member with the second driving system, relative to the first movable member.--

49. (Amended) An apparatus according to claim 48, wherein at least a part of said second driving system is provided on said first movable member.

50. (Amended) An apparatus according to claim 48, further comprising:

a reflective surface disposed on the second movable member; and

an interferometer, optically connected to the reflective surface, which is used for detecting positional information of the first object.

51. (Amended) An apparatus according to claim 48, wherein the second driving system moves the second movable member without a weight of the first movable member.

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~~52.~~ (Amended) An apparatus according to claim 37, wherein the exposure beam irradiated onto said first object defines a rectangular illumination area on said first object, said first direction and said second direction are parallel and reverse to one another, said projection system has a reduction magnification, and a scanning speed of said first object is different from a scanning speed of said second object.

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~~54.~~ (Amended) An apparatus according to claim 38, wherein said second driving system moves said mask before the pattern area of said mask begins to be illuminated with the exposure beam.

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68. (Amended) A scanning exposure method in which a first object is moved in a first direction and a second object is moved in a second direction for a scanning exposure, the method comprising:

moving a first object in the first direction by using a first driving system;

shifting the first object in a plane substantially parallel to a surface of the first object by using a second driving system while the first object is moved by the first driving system; and

moving a second object in the second direction by using a third driving system.

57 ~~70~~. (Amended) A method according to claim 56 ~~69~~, wherein said second driving system rotates said first object.

59 ~~73~~. (Amended) A method according to claim 58 ~~72~~, wherein said third driving system includes a linear motor.

79. (Amended) A method according to claim 68, wherein the first driving system moves a first movable member in the first direction; and

the second driving system shifts a second movable member, which supports the first object, relative to the first movable member,

wherein the first object is moved in the first direction by moving the first movable member with the first

driving system and is shifted by moving the second movable member with the second driving system.

80. (Amended) A method according to claim 79, wherein at least a part of said second driving system is provided on said first movable member.

81. (Amended) A method according to claim 79, wherein the second driving system shifts the first object without a weight of the first movable member.

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~~82.~~ (Amended) A method according to claim ~~68~~, wherein an exposure beam irradiated onto said first object defines a rectangular illumination area on said first object, said first direction and said second direction are parallel and reverse to one another, a projection system for the scanning exposure has a reduction magnification, and a scanning speed of said first object is different from a scanning speed of said second object.

65 56

~~83~~. (Amended) A method according to claim ~~69~~, wherein said second driving system shifts said mask before the pattern area of said mask begins to be illuminated with an exposure beam.

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96. (Twice Amended) A method of manufacturing a circuitry element with use of the method as defined in claim 68.

97. (Amended) A method for making a scanning exposure apparatus in which a first object is moved in a first direction and a second object is moved in a second direction for a scanning exposure, the method comprising:

providing a projection system for the scanning exposure, which is disposed in an optical path of an exposure beam, the first object being provided on one side of the projection system and the second object being provided on the other side of the projection system;

providing a first driving system which moves the first object in the first direction, at least a part of the first driving system being on one side of the projection system;

providing a second driving system which moves the first object in a plane substantially parallel to a surface of the first object while the first object is moved by the first driving system, at least a part of the second driving system being on the one side of the projection system; and

providing a third driving system which moves the second object in the second direction, at least a part of the third driving system being on the other side of the projection system.

77 ~~89~~. (Amended) A method according to claim ~~88~~ 76, wherein said second driving system rotates said first object.

79 ~~102~~. (Amended) A method according to claim ~~101~~ 78, wherein said third driving system includes a linear motor.

108. (Amended) A method according to claim 97, further comprising:

providing a first movable member which is movable in the first direction; and

providing a second movable member which is movable relative to the first movable member and which supports the first object,

wherein the first object is moved in the first direction by moving the first movable member with the first driving system and is moved relative to the first movable member by moving the second movable member with the second driving system.

109. (Amended) A method according to claim 108, wherein at least a part of said second driving system is provided on said first movable member.

110. (Amended) A method according to claim 108, further comprising:

providing a reflective surface disposed on the second movable member; and

providing an interferometer, optically connected to the reflective surface, which is used for detecting positional information of the first object.

111. (Amended) A method according to claim 108, wherein the second driving system moves the second movable member without a weight of the first movable member.

85 ~~112~~. (Amended) A method according to claim ~~97~~ 75, wherein the exposure beam irradiated onto said first object defines a rectangular illumination area on said first object, said first direction and said second direction are parallel and reverse to one another, said projection system has a reduction magnification, and a scanning speed of said first object is different from a scanning speed of said second object.

87 ~~114~~. (Amended) A method according to claim ~~98~~ 76, wherein said second driving system moves said mask before the pattern area of said mask begins to be illuminated with the exposure beam.

89 ~~128~~. (Twice amended) A method of manufacturing a circuitry element with use of a scanning exposure apparatus made by the method as defined in claim ~~97~~ 75.

51 ~~129~~. (Amended) An apparatus according to claim 39, wherein during movement of said mask by said first driving system, said second driving system rotates said mask about a rotation axis passing through a predetermined point in an illumination region of said exposure beam irradiated to said mask.

54 ~~132~~. (Amended) An apparatus according to claim 37, further comprising:

a fourth driving system which moves said second object in a plane which is substantially parallel to a surface of the second object and in a direction crossing said second direction, at least a part of the fourth driving system being disposed on the other side of the projection system.

68 ~~135~~. (Amended) A method according to claim ~~70~~ 57, wherein during movement of said mask by said first driving system, said second driving system rotates said mask about a rotation axis passing through a predetermined point in an illumination region of an exposure beam irradiated to said mask.

135. (Amended) A method according to claim 68, wherein during movement of said first object by said first driving system at least a portion of said second driving system moves in said first direction in order to shift said first object.

90 ~~139~~. (Amended) A method according to claim ~~99~~, 77 wherein during movement of said mask by said first driving system, said second driving system rotates said mask about a rotation axis passing through a predetermined point in an illumination region of said exposure beam irradiated onto said mask.

91 ~~140~~. (Amended) A method according to claim ~~97~~, 75 further comprising:

providing a fourth driving system which moves said second object in a plane which is substantially parallel to a surface of the second object and in a direction which crosses said second direction, at least a part of the fourth driving system being disposed on the other side of the projection system.

141. (Amended) A method according to claim 97, further comprising:

providing a first interferometer system which detects positional information of the first object; and

providing a second interferometer system which detects positional information of the second object.

142. (Amended) A method according to claim 141, wherein

said first interferometer system has a measuring axis for measuring the position of said first object in said first direction, a measuring axis for measuring the position of said first object in a direction which crosses said first direction and a measuring axis for measuring information on rotation of said first object, and

said second interferometer system has a measuring axis for measuring the position of said second object in said second direction, a measuring axis for measuring the position of said second object in a direction which crosses said second direction and a measuring axis for measuring information on rotation of said second object.--

179. (Amended) A scanning type exposure apparatus in which in synchronism with moving a first object in a predetermined direction relative to an exposure beam, a second object is moved, thereby exposing sequentially each of a plurality of defined regions on said second object, comprising:

a projection system which is disposed in an optical path of an exposure beam, said first object being provided on an object side of the projection system;

a movable body which holds said first object and is movable in said predetermined direction, at least a part of the movable body being disposed on the object side of the projection system; and

a first interferometer system optically connected to said movable body, which has a measurement axis passing through a substantial center of an irradiation region of said exposure beam and which measures positional information of said movable body relating to a direction intersecting with said predetermined direction.

180. (Amended) An apparatus according to Claim 179, further comprising:

a second interferometer system, optically connected to said movable body, which measures positional information of said movable body relating to said predetermined direction.

183. (Amended) A scanning type exposure apparatus in which in synchronism with moving a first object in a predetermined direction relative to an exposure beam, a second object is moved, thereby exposing sequentially each of a plurality of defined regions on said second object, comprising:

a projection system which is disposed in an optical path of an exposure beam, said first object being provided on an object side of the projection system;

a movable body which holds said first object, at least a part of the movable body being disposed on the object side of the projection system;

a first interferometer system, optically connected to said movable body, which has a plurality of measurement axes

for detecting positional information of said movable body relating to said predetermined direction; and

a plurality of reflection surfaces disposed separately on said movable body in correspondence with said plurality of the measurement axes.

184. (Amended) An apparatus according to Claim 183, further comprising:

a second interferometer system, optically connected to said movable body, which has a measurement axis and measures positional information of said movable body with respect to a direction intersecting with said predetermined direction; and

a reflection surface disposed on said movable body for said second interferometer system and extended substantially in parallel with said predetermined direction.

187. (Amended) A scanning type exposure apparatus in which in synchronism with moving a first object in a first direction, a second object is moved in a second direction, thereby exposing sequentially each of a plurality of defined regions on said second object, comprising:

a projection optical system which is disposed in an optical path of an exposure beam, said first object being provided on one side of the projection optical system, said second object being provided on the other side of the projection optical system, and an image of a pattern formed

on said first object being projected onto said second object by the projection optical system;

a first movable stage which holds said first object, at least a part of the first movable stage being disposed on the one side of the projection optical system;

a second movable stage which holds said second object, at least a part of the second movable stage being disposed on the other side of the projection optical system;

a first interferometer system which outputs positional information of said first movable stage, the first interferometer system being optically connected to said first movable stage;

a second interferometer system which outputs positional information of said second movable stage, the second interferometer system being optically connected to said second movable stage;

a first drive mechanism, functionally connected to the first movable stage, which moves said first movable stage in said first direction;

a second drive mechanism, functionally connected to the second stage, which moves said second movable stage in said second direction; and

a controller functionally connected to said first interferometer system, said second interferometer system, said first drive mechanism and said second drive mechanism, which converts positional information in said second direction of said second movable stage outputted from said

second interferometer system to first speed information and speed controls said second drive mechanism so that said first speed information may correspond to a constant speed V, and which converts positional information in said first direction of said first movable stage outputted from said first interferometer system to second speed information and speed controls said first drive mechanism so that said second speed information may correspond to a constant speed V/β, where β is a projection magnification of the image of the pattern on said first object projected by said projection optical system.

Please add the following claims:

--188. A circuitry element manufactured with use of the apparatus as defined in Claim 37.--

--~~189~~ 74. A method according to Claim ~~68~~ 55, wherein during the scanning exposure, speed of said first object is controlled by using said first driving system and position of said first object is controlled by using said second driving system.--

REMARKS

Claims 35-37, 39, 42, 48-52, 54, 68, 70, 73, 79-83, 96, 97, 99, 102, 108-112, 114, 128, 129, 132, 133, 135, 139-142, 179, 180, 183, 184, and 187 have been amended by this

Supplemental Amendment in order to recite more precisely the inventions intended to be claimed by Applicant. Claims 188 and 189 have been added.

Submitted herewith as an appendix is a copy of the amended claims showing, by underlining and bracketing, the changes that have been made. The deletions and dependency changes are self-explanatory. The following comments relate to support for the insertions and are not intended to limit the scope of the claims.

Claim 35

The first driving system to move the mask includes the relative scanning drive 24. The second driving system to move the plate includes the X & Y drive 31.

Claim 36

The first interferometer to measure positional information of the mask includes the laser interferometer 35. The second interferometer to measure positional information of the plate includes the laser interferometer 47B.

Claim 37

The optical path of the exposure beam is shown by the path IL in Fig. 1. The first object is the mask 7 provided on one side of the projection system 13, and the second object is the wafer 14 provided on the other side of the

projection system. The plane substantially parallel to a surface of the first object 7 is the X-Y plane.

Claim 48

The first movable member includes the movable stage 20, and the second movable member includes the movable stage 21.

Claim 49

A part of the second driving system includes the actuator 42 on the first movable member 20 (see Fig. 2).

Claim 50

The second movable member includes the movable stage 21.

Claim 51

The second movable member includes the movable stage 21, and the first movable member includes the movable stage 20.

Claim 52

The first direction is the direction of the movement of the mask 7 and the second direction is the direction of movement of the wafer 14. The projection system 13 has a reduction magnification, and the scanning speed of the first object (mask) is different from the scanning speed of the

second object (wafer). See column 10, lines 65-67, and column 11, lines 41-44.

Claim 68

See comments on Claim 37.

Claim 79

See comments on Claim 48.

Claim 81

See comments on Claim 51.

Claim 82

See comments on Claim 52.

Claim 83

See mask 7.

Claim 96

See column 1, lines 9-13.

Claim 97

See comments on Claim 37.

Claim 108

See comments on Claim 48.

Claim 109

See comments on Claim 49.

Claim 110

See comments on Claim 50.

Claim 111

See comments on Claim 81.

Claim 112

See comments on Claim 52.

Claim 114

See mask 7 and exposure beam IL in Fig. 1.

Claim 128

See column 1, lines 9-13.

Claim 129

See mask 7.

Claim 132

The plane which is substantially parallel to the surface of the second object (wafer 14) is the X-Y plane. At least a part of the fourth driving system (e.g., 29-31) is disposed on the other side of the projection system 13 (the wafer side).

Claim 133

See comments on Claim 129.

Claim 135

Portion 38, 40 of the second driving system moves in the first direction (X) in order to shift the first object (mask).

Claim 139

See mask 7.

Claim 140

See comments on Claim 132.

Claim 141

This claim has been amended to recite a method according to Claim 97, rather than an apparatus according to cancelled Claim 118.

The first interferometer system includes laser interferometers 35, 36A and 36B (Fig. 2). The second interferometer system includes laser interferometers 47A, 47B, and 48 (Fig. 3).

Claim 142

This claim now recites a method according to Claim 141, rather than an apparatus according to Claim 140 (which is a method claim).

Claim 179

Projection system 13 is disposed in an optical path of exposure beam IL. The first object (mask) is provided on the object side of the projection system. Part 21 is disposed on the object side of projection system. The first interferometer system 35 is optically connected to the movable body 21.

Claim 180

The second interferometer system 36A (Fig.2) is optically connected to the movable body 21 and measures positional information of the movable body relating to the predetermined direction (X).

Claim 183

See column 13, lines 35-37 and see comments on Claim 179. The first interferometer system 36A, 36B is optically connected to the movable body 21. A plurality of reflection surfaces are 34A and 34B. See Fig. 2.

Claim 184

The second interferometer system 35 is optically connected to the movable body 21 by the mirror 33 and has a measurement axis and measures positional information of the movable body 21 with respect to a direction (Y) intersecting with the predetermined direction (X).

Claim 187

See comments on Claim 37. See column 13, lines 35-37. Part 21 of the first movable stage which holds the first object 7 is disposed on one side of the projection optical system 13, and part 28 of the second movable stage which holds the second object 14 is disposed on the other side of the projection optical system 13. The first interferometer system 36A outputs positional information RSx and is optically connected to the first movable stage by a beam impinging on the mirror 34A. The second interferometer system 48 outputs positional information WSx of the second movable stage and is optically connected to the second movable stage by a light beam to the reflector 46. The first drive mechanism 24 is functionally connected to the first stage 21 via stage 20, and the second drive mechanism 31 is functionally connected to the second movable stage 28 via stage 27. The controller 23 is functionally connected to the first interferometer system and the second interferometer system, the first drive mechanism and the second drive mechanism. See Figs. 1-3 and column 11, lines 46-60.

Claim 188

See column 1, lines 9-13.

Claim 189

See column 11, lines 17-26, 46-49, and 62-64.